UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK
-----------------------------------------------------X
ZEREGA AVENUE REALTY CORP and :
FRED TODINO & SONS, INC.,
:
Plaintiffs,
:
-against- **OPINION AND ORDER**
:
HORNBECK OFFSHORE 04 Civ. 9651 (KNF)
TRANSPORTATION, LLC, :

Defendant. :
-----------------------------------------------------X
KEVIN NATHANIEL FOX
UNITED STATES MAGISTRATE JUDGE

## PROCEDURAL BACKGROUND

On October 27, 2004, the plaintiffs commenced a state-court action against the Hanover Insurance Company, Massachusetts Bay Insurance Company, Fireman's Fund Insurance Company, Inc. (collectively the "insurance companies") and Hornbeck Offshore Transportation, LLC ("Hornbeck"), seeking damages based on breach of contract by the insurance companies and negligence by Hornbeck. On December 8, 2004, a notice of removal was filed pursuant to 28 U.S.C. § 1441, asserting jurisdiction in this court under 28 U.S.C. § 1332. The insurance companies denied the allegations and filed cross-claims against Hornbeck, based on negligence. Hornbeck denied the allegations and filed counterclaims, asserting fraud. On March 22, 2006, the parties consented to jurisdiction by a United States magistrate judge, pursuant to 28 U.S.C. § 636(c) and Rule 73 of the Federal Rules of Civil Procedure. In 2006, the insurance companies entered into a settlement agreement with the plaintiffs. As the action sounded in admiralty, the Court determined that it had jurisdiction pursuant to 28 U.S.C. § 1333 and Rule 9(h) of the Federal Rules of Civil Procedure.

The amended complaint alleged that, "[o]n or about October 29, 2002 . . . [d]ue to Hornbeck's negligent operation of [its] barge, [the barge] struck Plaintiffs' bulkhead structure," and, "[a]s a result of Hornbeck's negligence, Plaintiffs' bulkhead structure collapsed causing significant damage to Plaintiffs' property." In the joint pretrial order, dated April 12, 2006, the plaintiffs claimed that "on or about October 29, 2002, a tug and barge owned and operated by [Hornbeck] was traveling south on the Westchester Creek. Due to defendant's negligent operation of the tug and barge, the barge and/or debris dragged by the barge stuck or 'allied' with the dock structure on Plaintiffs' property."

In an Opinion and Order, dated October 23, 2007, the Court found that Hornbeck was liable to the plaintiffs for damages arising from the collapse of the plaintiffs' bulkhead structure, caused by the allision of the defendant's vessel with the plaintiffs' bulkhead structure. More specifically, the Court determined that: (a) the defendant's barge came into contact with the plaintiffs' bulkhead structure, creating a presumption of negligent operation of the defendant's vessel, pursuant to The Oregon, 158 U.S. 186, 197, 15 S. Ct. 804, 809 (1895); and (b) the defendant failed to rebut the presumption of fault because it did not adduce any evidence to establish that the deterioration and unsound condition of the plaintiffs' bulkhead structure caused its collapse. On December 4, 2007, the Court denied the plaintiffs' motion for attorney's fees. On January 8, 2008, a judgment was entered in favor of the plaintiffs on their negligence claim, awarding them $1,505,353 in damages, as well as prejudgment and postjudgment interest.

Hornbeck appealed from the January 8, 2008 judgment, claiming principally that "the Court erred by applying a presumption in favor of [the plaintiffs] on the issue of causation and by excluding the testimony of Hornbeck's experts." Zerega Avenue Realty Corp. v. Hornbeck Offshore Transp., LLC, 571 F.3d 206, 208 (2d Cir. 2009). The Second Circuit Court of Appeals held that "the Oregon rule's presumption of fault does not shift from a plaintiff the burden of proving causation, and that the preclusion of Hornbeck's expert testimony was an abuse of discretion." Id. The Second Circuit found that: (i) the Court's conclusion that "Hornbeck's tug was not operated with reasonable care" was supported fully by the evidence; (ii) the burden remained on the plaintiffs to prove "by a preponderance of the evidence that the defendant's negligence caused the alleged damages"; (iii) precluding the expert testimony of Roderic Ellman ("Ellman") and Pierce Power ("Power") was an abuse of discretion; (iv) the Court did not err in admitting the expert testimony of Steven Schneider ("Schneider"); (v) the objection, for lack of proper foundation, to admitting photographs purportedly showing sinkholes in the bulkhead that Hornbeck sought to introduce through Christopher Todino ("Todino") was sustained properly; and (vi) the testimony and e-mail message of John Bowie ("Bowie"), containing a statement of Laura Bruno, an agent to a party to the action, was admissible and the Court's refusal to admit it was harmless. Id. at 211-14. The Second Circuit reversed the judgment, vacated the award and remanded the action with the following instructions:

> [T]he issues of Hornbeck's negligence and the amount of damages need not be retried. Upon remand, the Magistrate Judge should retry only the factual issue of whether the allision occurred and the issue of causation, with the burden of proof on the Plaintiffs. In doing so, the Magistrate Judge should make distinct determinations as to whether the allision, if it occurred, has been shown to have caused damage to the bulkhead and to the office building. If causation is found, as to either or both structures, the findings already made as to the amount of damages sustained by both structures may stand. Since this was a bench trial, the Magistrate Judge may rely on the existing record, supplemented by Ellman's and Power's testimony and whatever additional evidence the Magistrate Judge permits.
>
> Id. at 215.

The record of the bench trial, upon remand, was reopened and additional evidence was received commencing on January 13, 2011. Evidence was also received during trial proceedings conducted on January 14 and 28, February 8, 9, 10 and 15, May 18, and June 1, 2011. When the record of the trial was reopened, the Court received, inter alia, testimony from Bowie, and expert testimony from David London ("London"), Power, Ellman and Schneider. Once the reopened trial record was closed, Hornbeck made a motion to strike the rebuttal opinion of Schneider and a motion seeking an order of contempt, or, alternatively, an order scheduling a contempt hearing based on Schneider's failure to comply with the terms of the trial subpoena served upon him, by the defendant, on May 11, 2011; both motions were denied. Thereafter, the parties filed their respective proposed findings of fact and conclusions of law.

## ADDITIONAL EVIDENCE ON REMAND

***Testimony by John Bowie***

Bowie was Hornbeck's manager of logistics at the relevant time, and his responsibility was to review log books of Hornbeck's vessels. Bowie testified that, in the afternoon of November 12, 2002, one of his dispatchers informed him that he received a telephone call from a woman who identified herself as Laura Bruno and reported that the Hornbeck barge struck the wall of the Zerega property, located at 1000 Zerega Avenue, Bronx, New York ("Zerega property"), on October 29, 2002. Bowie telephoned Laura Bruno on the same day to discuss her claim, and he compiled the information he received from her in an e-mail message, dated November 12, 2002, which he sent to his general manager, Stanley Chelluck. In his e-mail message, Bowie stated that Laura Bruno claimed that, although no one witnessed it, the barge hit the wall of the Zerega property so hard that it shook the building, and all the occupants of the building, including herself, rushed outside in time to see the barge strike the abutment of the Unionport Bridge as it went through. According to Bowie, Laura Bruno reported that no damage on the retaining wall was visible at the time of the allision, but a few days later the wall collapsed. Bowie stated that Laura Bruno claimed that the name of the barge, E-2201, was obtained from the bridge operator. According to the e-mail message, Laura Bruno explained that four engineers surveyed the damage and "all contribute the collapse to the E-2201." Bowie's e-mail message stated that he spoke to the following crew members involved in the alleged incident, and: (a) Steven Spurlock ("Spurlock"), the tug mate, claimed "there was no contact with the wall"; (b) David Barclay, the barge captain, claimed "he was not on deck but felt no impact at all"; (c) Thomas Brown, the barge mate, was unavailable; and (d) Richard Eberhardt, the tug captain, was not in the wheelhouse, but he knew of no impact with any retaining wall, and he felt it would be near impossible for the barge to strike it as described. According to the e-mail message, the present barge crew members said that no incident appeared in their log book and that they received an instruction to survey the starboard side of the barge when the tug is available.

Bowie testified that he asked Laura Bruno how old the platform and the sea wall were, but she did not know. He testified he obtained the names of the crew members from the log book. Bowie stated that five men were on the tug at the time of the alleged incident and, usually, two would be on the barge. Bowie did not know whether the tug captain was in the wheelhouse or whether the barge captain was on the deck of the barge at the time of the alleged incident, and he did not interview the mate of the barge, "Tom Brown," before he prepared his e-mail message, because "Tom Brown" was unavailable. Exhibit A, the barge's daily log, indicates that, on October 29, 2002, the captain of the barge was "Burroughs" and the mate was "Williams." The October 29, 2002 daily log does not mention David Barclay, Thomas Brown or Tom Brown.

***Testimony by David London***

In an order dated June 2, 2010, the Court noted that receiving opinion testimony from London may aid it in determining whether an allision occurred and the issue of causation. London was called to testify by the defendant. London stated that he graduated in 1964 from City College, with "a bachelor of science in civil engineering or a bachelor in civil engineering," and he has been a licensed civil engineer since 1968. From 1964 to 1969, London worked for the Department of Marine and Aviation, City of New York, first inspecting piers and wharves during their construction and then designing and repairing ferry terminals for the ferry division. While working at the Department of Marine and Aviation, London also reported the observations he made, while at the scene of various dock collapses. In 1969, London joined Fitzpatrick Associates, a construction company, a subsidiary of Schiavone Construction Company, where he worked until 1977 as a superintendent of dock construction projects. From 1977 to 2000, London worked for Spearin Preston & Burrows, estimating the repairs that might be made to structures, supervising equipment, and fixing mistakes. After 2000, London worked for Vachris Engineering as "an engineer, designer."

London testified that most of his professional work has been in the field of marine structures. He stated that, concerning his tasks in connection with failed structures, the bulk of his time is spent "looking at it to learn how to fix the problem and avoid the failure," taking photographs, and, at times, determining what caused the failure of a structure and other tasks, as needed. When asked about the methods he uses in connection with determining the cause of a collapse of a marine structure, London stated: "I see the structure, and I take pictures, and I take measurements, and I try to evaluate or figure out what happened." London testified that he was not familiar with any standards used by engineers like him in evaluating the causes of marine structure collapses or whether what he does concerning any given task follows a standard. London provided an example of a method he used in determining the cause of a marine structure failure, namely a pier:

> First, you look and see what the collapse looked like, and take pictures of it, because that usually allows you when you are not on the site to see what's happening. I then research what the conditions were at the time. I talk to people and see what they were doing and why they did it. And anyone I can find as a witness who can tell me what happened, I will use that. If it had to do with something that looked like it was broken, I would check and take the thing back with me and have it analyzed, if that's what's needed. And then I just try to physically by physics figure out why it's not where it's supposed to be anymore.

When asked how he knows that his methods are reliable, London responded: "I feel they're reliable." London explained the basis for his opinion, that his methodology in determining the marine structure failures is reliable: "Because I have gone through a lot of depositions and they never went to trial before." London stated he was never trained in the area of evaluating marine structure collapses. London was permitted to offer opinion testimony on "the structure and failure of marine structures."

London explained that the Zerega property relieving platform had a concrete retaining wall on three sides, which rested on timber decking running from the retaining wall inland. Beneath the decking are located "12 by 12 pile caps and wooden pilings," that are "driven upside down into the bottom." A timber sheeting wall, or "cut-off wall," existed on the inshore end of the pile caps, which ran parallel to the front concrete retaining wall on the back face. London stated that one of the purposes of the cut-off wall is to keep soil on the land side from running out the back if the existing bottom is below the bottom of the relieving platform. According to London, at the Zerega property the remnants of fender piles or a fender system existed on the offshore face of the concrete retaining wall, whose purpose was to protect vessels from damaging the wall when coming into contact with it. London explained that, generally, a fill that can be made of various materials would be placed on top of the decking. The timber decking that is on top of the timber caps supports the fill, which is within the relieving platform. London stated that, occasionally, the fill can start being lost when the decking deteriorates, which would result in the formation of a sink hole.

London testified that, on the night of November 5, 2002, he received a telephone call from John O'Keefe, superintendent of Spearin Preston & Burrows, informing him about a problem at the Zerega property and asking him to take a look at it. On November 6, 2002, at around 6:30 a.m., London visited the Zerega property. He prepared a report of his activities on November 6, 2002, for the partners at Vachris Engineering. In that report, London noted:

> After extreme high water event about 3 weeks ago [the Zerega property owner] noticed cracks and sinkholes developing between the bulkhead and the pile supported building about 25 feet away. They believed that fill was leaking out from behind the timber sheeting cut off wall and the decking on the relieving platform. When they excavated down they found the deck in good condition but pushed up at the back row over the batter piles. Over the past 3 weeks the crack has widened, the platform moved away from the sheeting and the back row of piles, cracks have developed in addition to the building that is not on piles and in the concrete seawall. The pavement has settled several inches along the side of the building facing the water. There is no indication as to when the movement will stop. The owner has exposed a large area of the platform decking. At first look it appears that the hardware between the batter piles, timber cap and cross cap is gone. Without any connection and the lateral resistance gone, the platform decking and timber pile cap has been pushed offshore. The timber appears to be in great condition. They have no immediate use for the bulkhead and do not have a lot of money to do a major reconstruction or replacement. They are looking into insurance coverage. I took some pictures and they gave me a lot of photos they took themselves. They are afraid of a bulkhead falling into the water and having a major clean up. Site once was an oil facility. They were looking for some advice on what to do next. Told them I will speak to CFV and we will get back to them. My gut instinct was to remove the soil over the platform as soon as possible but I am not certain how the building will react to this. According to the owner, building is about 75 years old. Told them that will probably not be allowed to install a SSP bulkhead and fill in the

> area. The more what they do looks like it originally did, the easier to get a permit. Assuming the batter piles did not snap, it may be possible to lengthen the caps with fishplate splices and reattach the decking and caps to the inshore timbers, plumb and batter piles. This will establish some lateral support and allow any holes in the decking and sheeting to be repaired. Anchors would restore all the lateral support. How they would effect the building will have to be studied. Much of this work they can do themselves with the help of SPB's dock builders and divers. Discussed with CFV in PM and showed him the photos.

London explained that batter piles are installed at an angle, and the piles London considered at the Zerega property were batted out towards the water, which means that the head of the pile was inland and the toe of the pile was pointing down toward the water. The purpose of the batter piles is to provide lateral resistance to keep the platform from moving into the creek. London testified that, in the limited area he observed at the Zerega property, "there were two bolts that I saw, one of them was broken and one of them was severely corroded," although he did not remember where precisely they were located. London testified that, based on what he saw, it appeared to him that the relieving platform had been moving into the creek for a long time. He opined that the "caps that are on the piles, the cross caps and the batter piles, should have been tied together, and for some reason the caps over the piles and the sheeting that was holding back the soil weren't attached. . . . So, it just looks like they were never connected."

London explained that the photograph, which is Exhibit Z, depicts the high water line on the north face of the platform, which he estimated to be about three feet. When London took the photographs that are Exhibits Z, W2, AA, BB, CC, DD, EE and FF, on November 6, 2002, he saw cracks along the new concrete and cracks within the old concrete of the retaining wall. London testified that both types of cracks could be explained by the movement of the relieving platform or shrinkage. As for the cracks next to one of the bollards on the Zerega property, London testified they might have been caused by "something striking it from the outside,"[1] but he did not know what actually caused the cracks, and he could not be certain where that bollard was located at the Zerega property. London testified that, on November 6, 2002, he was not told about a barge having allided with the relieving platform; he was only told about the high water event "roughly three weeks prior to me being there."

London described the photograph of the inside of an excavation of the relieving platform on the Zerega property, Exhibit PP, stating that it was showing a gap between the platform and the timber sheeting. London explained that Exhibits RR and SS are photographs showing cracks running north-south on the platform, and that Exhibit SS, is a photograph showing a building with a different color sinking of the asphalt and paving at the bottom, suggesting a "long-term movement offshore of the platform." London testified that Exhibit TT, a photograph, demonstrates that the decking was missing from inside the relieving platform excavation and, although he could not tell for certain whether the decking was missing before the excavation, he knew "some of it was damaged when they did the work because you can see the marks of it."

On November 11, 2002, London prepared a daily report of his activities stating:

> Joey and Chris [Todino] called this morning. The seawall and relieving platform that is in front of their building was in the water. Apparently this incident occurred between Saturday night and this morning, He asked me to take a look and give him some advice. Told him from what I saw that doesn't make sense. Called JOK and met Chris, Joey and JOK at the site at low water. The bulkhead was not visible. The pavement failure ran all the way up to the building. JOK arranged to bring a diver

[1] London stated he was not told on November 6, 2002, that anything hit the structure and that "it was my suggestion to them it looks like something hit this." When defense counsel asked where in London's November 6, 2002 daily report he stated that he suggested, on November 6, 2002, "that something hit it," London responded: "I wouldn't say I didn't tell him that day because I didn't write it down." Defense counsel asked: "They didn't tell you something hit it and you didn't tell them you felt something hit it, right?" to which London responded: "I agree."

> to the site tomorrow. The way the creek turns in front of the bulkhead and just before the bridges large barges should be hitting it, putting lines on it or using it to turn of [sic] wait out a tide or bridge opening regularly. Told Chris that it looks as it [sic] the bulkhead was pulled over or smacked often enough to fail. That would explain why the batter piles were pulled up and offshore with out [sic] any apparent change in the status quo. Chris remembers seeing a huge barge bang into and drag along the seawall as it lined up to go to through the bridges. He had been amazed at how long he was scraping the seawall. This was also about the time he first noticed the cracks. He will speak to the bridge operator and see if he can pinpoint the the [sic] vessel. Also two barges came down the creek since Saturday. He will also find out if it is regular practice to tie off the Todino pier to wait for a tide or bridge opening.

On November 11, 2002, at 3:30 p.m., London reported in Exhibit BBB, Telcon Record, that he spoke to Chris Todino on the telephone, who told him, in pertinent part:

> About three weeks ago a huge barge came down the creek. It dragged along his bulkhead to line up to go through lift bridge. It bounced off hitn [sic] fenders of the bridge. This about the time he first noticed problems. He is waiting for a salesman to call who could remember the exact date.

London stated that, at the time of his visit to the Zerega property on November 11, 2002, he was not told that the platform had flooded at some point before it collapsed. London remembered seeing an undated photograph, Exhibit M, showing the excavation on the platform filled with water, but he did not remember when he saw the photograph or who showed it to him. Exhibit M is a photograph that Louis Bruno ("Bruno"), the plaintiffs' office manager, testified in his declaration he took "during the first week of November 2002."

On December 18, 2002, London prepared a daily report of his activities noting, in pertinent part:

> In early morning prepared for meeting. Made site visit and met with Stan White (represents insurance company) and CT. Looked around site. Cracks in remaining portion of north end of platform getting bigger. Building looks about the same. Took some measurements. Some items discussed:
> a) The bulkhead is still standing vertical. At low water it sticks out in areas about 1 foot. It forms a vee. They agree it looks like it was pulled over. There is one company that uses oil barges on this waterway.

London testified that, on December 18, 2002, without doing any investigation, he believed that the relieving platform was pulled over. During his deposition in 2005, London testified that there came a time when he believed that the damage to the platform "was due to a collision caused by a barge," but that he reached that conclusion without making any investigation. London testified that, at the time of his deposition in December 2005, he believed that the platform was pulled over.

However, London stated he "no longer believe[s] the pier or the bulkhead or the wharf had been pulled over." London opined that he believed presently that "Ellman is correct in that it was pushed out from shore." He explained that "a series of things happened over the years that have gradually led to a point where it eventually ended up in the water, and one of them may have been - - could very well have been the barge hitting it." London stated:

> My opinion from the aerial photographs, from the surveys and just seeing the condition of the cracks and the site, is that the bulkhead has been gradually moving out over the years. That's an opinion I have. And that's moved out substantially. I don't believe at the time it was out two feet it was enough to set the thing over, but there are cracks in the pavement. The pavement was put in kind of recently, much sooner than the 60 or so years it was built. So, the cracks that you see in there are relatively fresh. I believe this thing has been cracking all along, and been filled in, it may have had dirt on it before.

London explained that he reviewed the National Oceanic and Atmospheric Administration ("NOAA") references, showing "a higher than normal high water event that took place on I guess it was the 16th or 17th [of October, 2002]." He stated:

> What was unusual is that it was a high water event of the type in which the wind kept the water in for a one-day period, so it really never dropped. So, you had high water that was about a foot over the normal high water level, maybe about a foot over the normal extreme high water level, for a period of about two days. But it's been a long time since then and before it went into the water, long time meaning three weeks. The day I saw the site was the 6th, and because the tide was predicted to be low water

> at 6:30, I came there and I never saw the low water. The low water didn't get reached that day. . . . On the day I was there on the 6th it was raining, and that's why we left the site when we did, and I couldn't go around the site because there wasn't dead low water, so I never saw the front of this thing. So, anything I say is based on the saying that I never saw the front of this thing. . . . After I was there, between the 6th and the 7th, the water went to an elevation 11, and that is way over what you normally have. And I believe that picture that I was shown earlier . . . was the day it was taken. . . . The tides dropped right like a rock after that, so that the water didn't have a chance to get out behind it as quick as it would in most other cases.

London opined that the only thing he "could understand is that this structure has I guess it's four piles under the cap, one of which is right under the concrete retaining wall, and the only thing I could imagine is that the front pile was knocked out or that whole structure was knocked out in the same spot. That would then be a triggering event." According to London, the barge was "a pretty mass thing," and he did not think

> any impact would damage or crack the wall. It could chip off something from the wall, and it could make a crack in that newly placed concrete that was on top of the retaining wall, but it probably would not have done any real significant damage. But it does say something hit that thing, and I don't know what other vessels were there, but something had hit that pier.

London described how he "plotted the tide on the day of the 29th, which was plus 6 at 3:30 p.m., . . . and . . . the corner of the barge, with two feet of draft, is just about at the level of all the timber work." London explained:

> That normally should not do anything, because the timber - - the concrete wall and the fender should have stopped it. The timber structure below it, however, has a wall above it that's all deteriorated, and eroded away, so that the timbers from the decking, the low level platform, the caps and the piles are all out exposed, so that at that particular time on that particular day - - which is peculiar - - that light barge . . . was longer than the dock, it was 12 feet out of water, which meant it was way above the concrete platform, which is in line with what Chris Todino said, that he saw the barge as a big structure going by me. . . . [I]t couldn't have been the bow that hit this thing, because the bow has a big rake and would have had to ride up on the wall, or if it was coming backwards, down, it would be over the wall and it wouldn't have done that kind of damage. But the stern on this barge has a really weird square corner. . . . So, what I'm speculating . . . is that the corner of [the barge] . . . clipped that timber and knocked something out. That probably didn't bring down the wall

> itself, but all the things that led up to this, this 30, 40 or 50 years of moving, all of these rains of water that you keep alluding to, are all things that have been pushing it out. That was just the thing that started the mechanism that when that extreme high water came . . . led to this thing progressively cracking. The timbers started to go. Now, that may be when some of these big cracks developed, and maybe that's what caused that big crack in the wall, I don't know. But for practical purposes that is my conclusion. But I believe it was the extreme high water tide that was the water event that was shown in that picture. . . . [I]t would have been the 6th or the 7th. That's when that high water event was.

London also explained that the tide was at the elevation 11, on November 6th, after which it went down "to minus one." According to London,

> the tide dropped in that period of time from 11 feet above mean low water to one foot below, a 12 foot range in a period of probably six hours. That's the type of force that made us successful as marine contractors. These are the days in which the pressure behind is built up suddenly, and the water can't be dissipated quick enough, and it blows things out. . . . The weight was starting to shift offshore, and then the whole platform went along for a ride. And I don't believe [the back of the relieving platform where the batter piles are] was ever tied to the inshore wall, and if it was it probably wouldn't have gone over.

London opined "that corner [of the barge's stern] got between the fender pilings and did some damage," or "it could also have caught the caps that were sticking out." He believed that "something caught the timbers below." London also opined that the only way the barge could have caught the timbers would be if it was"going down stern-first," but he did not know if it did.

On cross-examination, London testified that it is a usual practice that, if a sinkhole develops on a relieving platform, a test pit is excavated to expose the timber at the bottom of the relieving platform in order to locate the "damage or rot in the timber." He stated that the excavation on the Zerega property that he observed on November 6, 2002, was the type of test pit that would be done usually to determine the cause of a sink hole. London testified that the timbers he observed, exposed at the bottom of the platform, were "in remarkably good condition." According to London, the relieving platform did not fail as a result of the timber deterioration or the digging of the test pit; rather it failed as a result of outside forces. London testified on cross-examination that, the first time he saw the relieving platform, on November 6, 2002, he had the opinion that it had been hit "a couple times, several times," and, although his daily report notes from that day did not reflect it, he remembered that he told Chris Todino that "the bulkhead had been hit." However, when questioned further in connection with these statements, London stated that, if his daily report notes of November 6, 2002, did not mention that he told Chris Todino that it looked like the platform had been hit, "then I didn't. It was not until the next time. I don't recall from this anything else." London could not recall whether he discussed with Chris Todino, on November 6, 2002, his opinion that the relieving platform may have been hit. London testified that he remembered he was the one who gave Chris Todino the idea that the platform had looked like it had been hit, on November 11, 2002. He opined that "a corner of that barge can get underneath that pier or that structure and do damage to the - - enough damage to cause a - - an element that caused this thing to come down into the water, a key element." According to London, the barge's allision with the relieving platform would be the event that triggered the relieving platform's collapse, and the high water event that occurred after November 6, 2002, reaching a water level of 11, hastened the collapse of the relieving platform. London opined that the relieving platform "may never have collapsed if that high water event never took place in the next 20 years. The last one like that was in 1992." London testified that, if the allision occurred, "[t]hat event was one of the possibilities of a series of events that would have brought the thing into the water."

On re-direct examination, London stated that he could not tell with any degree of certainty what event might have caused the collapse of the relieving platform. He testified that he did not believe that the cracks on the platform were "caused by the long term movement starting from 1950, ‘60 or whatever it was.” London also testified that he believed the barge allided with the platform, but that was not “what brought it down.” He changed his earlier opinion and stated that “[i]t’s unlikely that the bottom of the hull, the stern, would get underneath there and to hit the pile”; in fact, London said that would be impossible.

On re-cross examination, London stated that he no longer agreed with his statement, made on January 4, 2011, in preparation for his testimony when the trial record was reopened, that “[m]ost likely the relieving platform was hit hard by a large vessel.” London opined, during the re-cross examination, that the barge could have damaged the platform “if it was pulled from the bow or the stern,” and he stated he “actually thought it was being pulled by the stern.” When asked how an outside force could cause the relieving platform to collapse, London stated:

> I believe that when they did the asphalt paving to pave the area, the equipment they used was of the type and nature that would shake this thing apart. The piles are, I’m guessing, 40 feet long, 15 of which is in peat, 10 feet is in water. There’s about 3 or 4 feet or 5 feet of dirt. And there’s good dirt below it. I think that that got the thing moving, that it happened at that time. But it’s just an opinion.

London also testified that he did not know when or how the asphalt was put on the relieving platform, and that “[t]he longer it was away from that point - - the further away, the less likely it is that it did that.” London explained that this opinion is based on what he “see[s] and the way cracks are and the way it opened up and the way - - - the only thing that’s left of all the options I had looked at. And I assure you I didn’t look at every option possible because they keep coming up. But that’s the one that seems to me most likely.”

***Testimony by Pierce Power***

Power prepared a report, dated September 29, 2005, concerning damage to the Zerega property, based on his inspection of the barge and the Zerega property dock, as well as an investigation of the circumstances surrounding the allegation that the platform collapsed as a result of an allision. In his report, Power described the barge as a single skin non-propelled oil tank barge of all welded steel construction and rectangular shape. He reported that the barge was surveyed on December 4, 2002, and in light condition on December 10, 2002. No significant damage to the vessel was noted during those surveys that "would indicate that the vessel had made contact with any object other than some light isolated blemishes, which are considered commensurate with the nature of the trade the vessel, is engaged in." Power reported that "the crew of both the tug and the barge indicated that they had not noticed anything during their passage through the Westchester Creek and Unionport Bridge." Power reported that he made observations of the dock on December 3 and 9, 2002. During a survey of the dock,

> numerous cracks were noted in the east or outer wall, which runs parallel to the dock. These cracks did not appear to be fresh in nature and on further investigation it was noted that there was paint found within these cracks indicating that these cracks had been in existence for a considerable period of time, i.e. prior to the last coat of paint being applied.

Powers noted that a trench was dug in the dock, "running along the base of the building where PVC piping was placed and that it could not be ascertained when the trench was dug and by what means, i.e. by hand or mechanical means." The report stated that "little to no maintenance work had been carried out in way of the foundations, and evidence existed "of erosion of the landfill behind the wooden sheeted bulkhead." Power noted:

> This was further indicated in the various statements of the crew where they indicated that they had seen water in way of the trench dug out during high tides. There was evidence of some rehabilitation work having been carried out in way of the top outer section of the concrete apron however this was considered to be cosmetic in nature.

Power concluded that, based on the information provided to him to that date, which includes: (a) Randive, Inc., report and dive videos; (b) general drawing of the dock prepared by Ocean & Coastal Consultants, Inc.; (c) photographs of the barge; (d) photographs of the Zerega dock; and

(e) various crew statements and his observations made during the December 3 and 9, 2002 surveys, it is his opinion "that the collapse of the subject dock was not related to any allision by the subject barge and that the collapse was a result of the general disrepair and decay of the dock."

An affidavit by Power, dated May 19, 2006, containing his direct examination trial testimony, was received in evidence instead of eliciting his direct examination testimony in open court. In that affidavit, Power stated that prior to 1994, he trained and sailed with the Irish Naval Service and retired at the rank of sub lieutenant, in October 1991. From October 1986 to October 1991, he underwent extensive training at the Military College and the Naval Academy in Ireland, which included shore-based, as well as sea-going training. Power also completed a three-year diploma course at the Nautical College of the Cork Regional Technical College in Marine/Power Plant engineering, qualifying for full service in the Merchant Marine. He received a diploma in Mechanical Engineering from Bolton State College of Technology and a Bachelor's of Science Degree in Engineering from Trinity College in Dublin. Since 1994, Power has been employed as a surveyor and consultant engineer with the marine consulting firm Martin, Ottaway, van Hemmen & Dolan, Inc., in Red Bank, New Jersey. During his employment with that firm, Power carried out surveys on all types of vessels, inspecting and surveying steel hulls for damage. Power stated that, based on his experience, he is able to make judgments regarding impact damage to steel vessels and whether a vessel's hull had been in a collision or an allision. Power noted that he was asked to testify about his inspection and survey of the barge.

Power testified that he visited the Zerega property on December 3, 2002. When he inspected the barge on December 4, 2002, he did not see any evidence that it "sustained collision damage," but his inspection was limited because the barge was loaded and deep in the water. Power inspected the barge on December 10, 2002, when it was empty and fully exposed, except for the underwater hull section. Power stated that the "draft forward was approximately one foot and the draft aft of approximately three feet. This means that the stern was approximately three feet under the water, with the remaining twelve feet of the side shell plating of the barge being exposed for inspection." Power inspected the barge from the dock and a small boat that circled the barge. He explained that, if contact had been made with the dock, it would have been on the starboard side of the barge "as the tug was made up to the barge by means of gate lines." According to Power, no indication existed of any damage or of a recent allision and no "set ins" or cracks in the shell plating indicating any recent contact. The rubbing strips, designed to take the rubbing load when the barge is eased alongside a berth, showed scrape marks, which are normal and commensurate with the trade activities of the barge. Power testified that no indentation existed "of the shell plating or cracking of the shell plating which would have indicated an allision with a dock sufficient to cause the dock to fall down/collapse." According to Power, indications on the barge of an allision with a dock could include: (a) deep scratches; (b) gouging; (c) defects in the plating; (d) pieces of paint from other sources; (e) evidence of concrete on the hull, if the barge scraped along a concrete pier; and (f) heavy scuffing, "torn/buckled/holed plates, abraded plates or abraded rub rails." He stated that he did not see "any of the indications listed above," and that, "with absolute certainty," he did not see any of the indications of the barge's allision with the dock. He concluded that the barge did not allide with the dock.

On cross-examination, Power testified that he did not recall the names of the crew members that he interviewed when he inspected the barge, but he presumed that the persons he interviewed were those whose names are indicated in the daily log of the barge, not the persons mentioned in Bowie's November 12, 2002 e-mail message. Power did not know how many crew members exactly were at the tug and the barge, how many notes of interviews with them he saw, or whether all crew members provided statements. Power testified that the note in the November 5, 2002 daily log for the barge, indicating "Painted 229 signal yellow on deck on port side, completing outside painting for season," referred to general maintenance of the deck because the signal yellow "is deck painting paint. It is not on the hull plating."

On redirect examination, Power testified that he read the statement of Dale Belden ("Belden"), the chief engineer of the tug, who stated that he observed the condition of the excavated relieving platform and "there was water in the way of the excavation holes," and that Belden communicated this to the tug captain or the mate. Power also testified that the tug captain Burroughs and mate Williams made statements that they did not experience any allision. Power noted that the tug mate Spurlock made a statement in which he said that no incident of allegedly contacting the berth occurred, and the tug training mate stated the same. Moreover, the tugboat captain Eberhardt also made a statement that he did not know of any incident. Power explained that signal yellow is a high luminous paint for safety hazards and, because the barge has an encapsulated plate around the side, yellow or a bright color is used usually for visibility so that the crew does not slip and fall. Power testified that the hull of the barge is painted black and no fresh black paint was observed by him on the barge at the time he made his report. Power explained that the "set-ins" on the barge would not be related to the allision because they are "old in nature." He testified that the barge daily logs after October 29, 2002, did not indicate that the barge had been repaired. Power stated that the November 1, 2002 daily log indicates that the United States Coast Guard inspected the barge when it performed its mid-period inspection and made no finding of any damage to the barge.

The Court inquired of Power what standards, if any, had been developed in the surveyor industry, of which Power is a part, respecting the methods to be used to determine whether a vessel has been involved in an allision or collision. Power stated that

> classification societies are developed like ABS, Pure Veritas, DNV, which is Det Norske Veritas and they are societies that are out there that your vessels are actually manufactured, are built to and they have a set of standards and rules and regulations with regard to building. . . . They also have rules and regulations with regard to damages. If they see damages, as with the Coast Guard, that affect in their opinion the structural integrity in any way of the vessel, they will require you to do either permanent repairs or some sort of repairs.

Power explained that these societies do not accept members. He stated that the International Maritime Organization ("IMO") creates rules and regulations concerning the shipping industry, and the certification societies act "like the watch keepers, like the Coast Guard," because they determine whether a vessel is built to their standards. Power testified that "with regard to the physical damage [to a vessel], the standards are imposed by the classification societies," and "[t]he classification societies give guidance on them." According to Power, in rendering his opinion, he applied "marine industry standard practice," which is "published in various documents and it's published in the SOLAS regulations, which is the IMO regulations." The Court asked Power to describe the marine industry standard practices that pertain to the methods to be employed by a surveyor in determining whether an allision occurred. Power explained that the first step is to inspect the vessel to see if physical damage of gouging or steel penetration is present, or "huge areas where paint has been either ripped off the vessel, or, if it's two vessels coming into contact with one another, you may see the paint of one vessel going on to the point of the other vessel, which is an indication that they actually have collided." The Court inquired of Power whether, if an allision occurs and a fendering system is in place, the fendering system would prevent a vessel from displaying evidence that it had come into contact with a relieving platform. Power stated that "there would be some sort of indication on the barge," and the evidence of impact would depend on various factors involved.

***Testimony by Roderic A. Ellman***

Ellman prepared a report, dated September 20, 2005, based on an investigation of the condition of the collapsed dock at the Zerega property. Ellman stated that "[t]he alleged impact was reported to have occurred on 10/28/02. The subsequent dock collapse occurred on 11/6/02." Ellman reported that he made a site visit on December 9, 2002. With respect to the collapsed dock inspection, Ellman noted that "[t]he divers took soundings along the dock at approximately 10 feet and 20 feet off the dock face and performed visual and tactile examinations of the line piles, perimeter piles, 12" x 12" timber pile caps and four inch thick timber decking at both the northern and southern standing sections." According to the divers, the timber piles and timber pile caps showed signs of limited marine borer activity and were covered in marine growth. Ellman reported that twelve pile bents remained standing in the northen section and were sound, and five pile bents remained standing in the southern section and were intact, except for the southern most pile bent, where three piles were split completely down to the mud line. According to Ellman, the connection of the timber batter piles to their timber sheeting had failed along the collapsed portion of the dock. With respect to the building inspection, Ellman noted that he inspected the interiors of the first floor rooms along the east side, where a new concrete floor slab was added above the original one, and vertical and horizontal cracking was observed along the east wall. Ellman concluded that the relieving platform was at least 60 years old and evidence existed that some rehabilitation of the dock was performed in the past, indicating that former conditions of disrepair existed, which would have been expected for a structure of that age. Ellman concluded that settlement cracks noted in the building and the recent re-leveling of the floor slab indicated an ongoing loss of retained fill behind the timber sheeting. Ellman reported that he found no evidence on the remaining dock or the barge to indicate that an impact had occurred. Ellman opined that, absent evidence of direct or observable impact damage to the structure and barge, "the more plausible cause of the dock collapse is due to a weakened structure in disrepair as evidenced by its present condition which is quite common for this type of construction and age."

Ellman's affidavit, dated May 3, 2006, containing his direct examination trial testimony, was received in evidence instead of eliciting his direct examination testimony in open court. In the affidavit, Ellman stated that he is a licensed engineer and has a bachelor's degree in geology from the State University of New York at Oneonta and a master's degree in civil engineering from Polytechnic Institute of New York. At the time of his affidavit, Ellman was a partner at Muesser Rutledge Consulting Engineers, a firm specializing in marine structural engineering, geotechnical engineering, marine structures and foundation design. Ellman stated he has experience in at least ten waterfront structure condition surveys and collapse investigations.

Ellman stated that his "initial inspection of the premises was on December 9, 2002," including the building adjacent to the relieving platform. Ellman, Power and Terence Gargan, Esq. of Hill, Betts & Nash, spoke to the divers engaged to inspect the underwater area where the collapse occurred, and the divers outlined the procedure they would follow in their inspection. Ellman and others boarded a boat from which they had radio communication with the divers, who described their underwater observations. Ellman inspected the relieving platform, whose center was collapsed.

Ellman described how the Zerega property's relieving platform was constructed. The relieving platform rests on wooden pilings, driven vertically into the mud by a pile driver, which hammers the piles into the earth. After the piles are driven in and cut to a uniform height, pile caps are installed for the purpose of connecting the pilings together to form a strong, unified platform upon which the relieving platform is constructed. Pile caps are connected to the pilings by means of steel bolts or steel bars. Once the pile caps are affixed to the piles, stringers are installed that span the space between the pile caps. Timber decking is then installed over the stringers. The decking forms the platform upon which the fill is placed. A concrete wall is installed on the water side of the structure, which holds the fill in place, and is faced with a timber fender system to resist vessel impact and fitted with bollards and cleats to secure vessel mooring lines. Some of the piles are driven in at an angle and they are called batter piles. Installed on the land side of the relieving platform is timber sheeting, which holds the soil back and prevents the soil from washing into the water. The timber sheeting is supported by the batter piles. The fill is added between the concrete wall and the timber sheeting until the level is even with the ground behind the relieving platform. The fill area is then covered with a concrete slab or asphalt.

Next, Ellman described how a relieving platform achieves strength. He explained that the integrity of the relieving platform assembly depends on the strength of the fastening between the various members of the assembly. The pile caps have to be firmly and permanently connected to the pilings. The stringers have to be firmly and permanently attached to the pile caps. The timber decking has to be firmly and permanently attached to the stringers and the timber sheeting to the batter piles. Ellman stated that timber structures of this type begin to lose strength due to the: (i) natural biological decay of the timber; (ii) exposure to marine borer activity; and (iii) corrosion of the metal fasteners that connect the parts of the relieving platform.

Ellman observed on the northern remaining portion of the Zerega property's relieving platform evidence of several piles that had shifted beneath their pile caps. According to Ellman, an attempt was made in the past to bring the weight of the structure and the fill back to the pilings beneath the pile caps. Side scabs had been added along certain pile caps to shift the weight of the structure back to the pilings below. Ellman stated that the five bents (a series of piles in line over which a pile cap is located) north of the break were leaning toward the water. The sinkhole, which Ellman assumed predated the alleged striking of the dock, was significant and its presence indicated that fill material had been escaping through the timber sheeting on the platform. According to Ellman, this can occur due to the deterioration of the timber sheeting or the shifting of the timber sheeting resulting from the rotation of the batter piles occasioned by overload or the loss of fastening through corrosion or wastage. Ellman stated that the connection of the timber batter piles to the timber sheeting failed along the collapsed portion of the dock and the timber sheeting had moved toward the water. The entire collapsed portion of the dock had moved out and into the creek. Ellman noted that no indication existed that the fendering system that was on the outside of the dock sustained recent damage. He also noted that his inspection of the building behind the collapsed relieving platform revealed vertical and horizontal cracking in the wall of the building, and paint appeared inside most of the cracks, which indicates that the cracks pre-dated the painting.

Ellman explained that the cutoff wall is a series of timbers that form a bulkhead or wall, whose purpose is to confine the soil and fill on the upland side of the wall. The cutoff wall is located about 25 feet upland of the edge of the dock facing the creek. The relieving platform decking is a horizontal floor which holds the fill above it in place. According to Ellman, a loss of fill through the relieving platform decking would result in sinkholes developing at the surface above the relieving platform, and a loss of fill through the cutoff wall would result in sinkholes upland of the cutoff wall. Ellman opined that the dock failed as a result of having been subjected to a horizontal force applied in the direction toward the creek. Ellman stated that the force which caused the dock to slide into the creek was the force exerted by pounded upland surface water, i.e. flood or storm water runoff. The force of the water, coupled with the removal of fill on top of the platform and the condition of the connecting hardware affecting the connectivity between the structural members of the relieving platform, caused the failure. Ellman explained that his conclusion is supported by the following evidence: (a) immediately after a high water event on October 16, 2002, sinkholes and cracks began to appear; (b) fill was leaking out of the cutoff wall and out of the decking of the relieving platform; (c) the batter piles supporting the cutoff wall were rotated away from the cutoff wall; (d) the relieving platform moved away from the cutoff wall; (e) the relieving platform and the timber pile caps were pushed offshore; and (f) the lack of connecting bolts between component parts was observed.

Ellman stated that during his inspection on December 9, 2002, a sump and a sump pump were observed in the basement of the building and their presence indicates that flooding occurred in the past. He stated that the flooded condition on the top of the relieving platform was a result of an accumulation of rain run off that has not properly drained or a broken water main upland of the relieving platform. Additionally, the removal of fill on top of the platform reduced further the platform's ability to resist lateral load by reducing the restraint offered by the weight of overlying fill above the batter piles. Ellman opined that "the combination of excessive hydrostatic pressure, i.e. extreme highwater event in combination with ponded surface water, and the reduction in lateral load capacity of the relieving platform due to the removal of overlying fill and the corrosion and disrepair of the connecting hardware, resulted in the observed failure." He explained:

> If we stack 3 feet of salt water behind a wall, the pressure acting at the base of the wall is 192 pounds per square foot. The horizontal force due to the salt water acting on the wall tending to move it toward the Creek is 288 pounds per linear foot acting at one foot off the bottom. This force runs the entire length of the wall, approximately 212 feet. The total force tending to push the wall down is 61,056 pounds at 1 foot above the bottom. This force is partially resisted by the embedded portion of the cutoff wall and partially resisted by the batter piles that support the top of the cutoff wall. The batter piles have to be positively connected to the cutoff wall to be effective in resisting the applied hydrostatic force. . . . This is what, in my opinion, is what happened here.

Ellman concluded that the horizontal force that pulled down the dock was a force from the land side, not a force from the water side. According to Ellman, if a barge struck the dock, the fendering system would show damage, and no recent damage appeared on the fendering system.

On cross-examination, Ellman testified that he first visited the Zerega property on December 3, 2002, where, for several hours, he "walked the site and observed the conditions of the collapsed dock and adjoining property," as well as

> documented conditions with photographs, tactile examination, meaning touching the wood or the metal parts, look at the interface where the failures had occurred, noting what appeared to be, whatever activity was going on, the fact that there was some kind of recent repair work or other work that had been performed at the dock, namely, the new curb, some of the bollards that were added.

According to Ellman, he "did not get introduced to anyone of the plaintiffs" during that visit.

Ellman testified that, in doing his investigation, he did not consider tide or wind conditions and he did not know when the alleged allision was claimed to have occurred. The purpose of his investigation was to ascertain whether physical evidence existed that an allision occurred. He testified that the remaining portion of the fender system at the Zerega property relieving platform was in disrepair, which means that many components were missing. Ellman opined that the relieving platform was not constructed with stringers. He testified that the pile caps shifted, leaning to the offshore of the remaining structure and portions in between. However, Ellman did not believe that the alleged allision could have caused the pile caps to move offshore. Ellman testified that he had no personal knowledge or evidence that would demonstrate that the sinkhole he assumed predated the alleged allision, did in fact predate it, and he stated that, if the sinkhole did not predate the alleged allision, that would be a significant fact that might change his opinion. Ellman testified that when he first observed the relieving platform, his "reaction was that it had been pushed out from the backside, as opposed to being pulled out from the front side," as London testified. When asked how he can reconcile his statements that the wood was in good condition and that the structure was in disrepair, Ellman stated that, although the wood was in good condition, "the connectivity of that wood was in rather poor condition," and "if the connecting hardware is not performing as designed, that would still constitute a structure in disrepair." That is so, Ellman testified, because he saw evidence of disrepair, namely, "rusted and missing bolts," although he could not recall how many of those he saw. Ellman testified that "the formation of sinkholes and loss of ground [are] attributes towards the condition of disrepair," and he agreed with London that deterioration is a major cause of sinkholes. Ellman stated he did not consider the possibility that a barge may have picked up debris and dragged it across the front of the relieving platform because the remnant fender system was still in place in many locations, although he did not know whether the fender system existed across the entire relieving platform.

When asked why he did not mention his visit to the Zerega property on December 3, 2002, in his September 20, 2005 report, Ellman stated that "the visit of 12/3 was not necessarily for the purpose of the investigation as it was my introduction to the site, the parties, and then a planning session to perform this inspection on December 9." Ellman testified that, on December

10, 2002, he visited the barge and stopped at the Zerega property to take pictures and inspect the site from the vantage point of a boat. Ellman did not mention his December 10, 2002 viewing and photographing of the property in his September 20, 2005 report. Ellman also testified that he relied on the information provided by London, when he made a statement that London "inspected some of the bolts" and "found them to be deteriorated." However, Ellman admitted that he did not know how much of a single bolt that London testified he observed split in two parts was deteriorated. Ellman testified that his opinion was based on the assumptions that: (a) the sinkhole predated the alleged allision; and (b) the sinkhole and cracks began to appear "[i]mmediately after the high-water event of October 16, 2002," although he could not recall who conveyed that information to him.

Ellman testified that the flooding, depicted in the photograph that is Exhibit M, "is a combination of tidal waters, but I also believe that the Todino storm drainage or roof drainage collection system, which consists of vertical pipes running off the back of their building to catch basins, was also directing storm waters to the back of the dock." When asked to reconcile that testimony with the statement in his affidavit that the accumulation of water was not the result of the high tide, Ellman stated that "[a]t that time, [he] was not aware of the high-water events that had immediately or were in the same time period." According to Ellman, his opinion changed when he found out about the high-water events, sometime after his deposition but prior to preparing his direct examination trial testimony affidavit. When asked why he did not amend his report when he changed his opinion, Ellman stated that the "source of that water is not necessarily primary to what my conclusions are."

Ellman was also asked whether he thought that a steel barge that weighs 1,200,000 pounds, if it allided with the relieving platform, would not have the same effect as the 61,000 pounds of hydrostatic pressure described in his affidavit. He responded that "that force would depend on the speed of the allision. If the speed was slow enough, it would be less." Although Ellman opined in his affidavit that the platform would not have collapsed had the plaintiffs not excavated the overlying soil from the relieving platform until the bulkhead was repaired and the batter piles attached properly to the cutoff wall and the fill behind the cutoff wall was contained, Ellman agreed with London that the proper course for determining the cause of a sinkhole is to dig a test pit. Ellman stated that, "had an allision occurred, where the tide was and what the winds were not necessarily paramount to understanding whether an allision had occurred or not." Ellman testified it is possible that the barge allided with the platform, but he opined that the cause of the collapse was the platform's inability to resist the force created by lateral load coming from the land or building side towards the water. When asked if it were true that he was unable to conclude what exactly the lateral load was that caused the failure of the relieving platform, Ellman stated that it is not, which contradicted directly his statement, at his deposition, that he did not come to a conclusion as to what lateral load caused the failure of the platform.

On re-direct examination, Ellman stated that his assumptions about the sinkhole's predating the alleged allision and the process of the sinkhole's formation are based on his experience as a marine structures engineer, and, based on that experience, he opined "that the initiation of the formation of these sinkholes preceded quite a number of - - there was a significant time span from when the sinkholes were beginning to form to the time that they appeared as sinkholes and were observable at the surface." Ellman agreed with London that the collapse was extraordinary because of the size of the collapse. Ellman opined that the collapse of the platform occurred as follows:

> [T]his relieving platform had been moving towards the creek in some manner over its lifetime. I believe that, based on the evidence given, photographs of cracks in the asphalt pavement, that to me would signal a change or a more rapid rate of movement during that specific time, which is somewhat consistent with the way aged relieving platforms perform. As they gradually deteriorate over time, their ability to resist lateral loading diminishes and the rate at which they move, because of their gradually diminished decreased lateral capacity, that rate will increase as the structure becomes increasingly deteriorated. At some point, when the batter piles are becoming ineffective, it forces the vertical piles not only to resist the vertical weight of the relieving platform, but it forces them to also resist the lateral loading at or on the relieving platform, and the vertical piles have a very limited capacity to resist lateral load. They are basically like stilts, narrow poles and, when subjected to a lateral load, will deflect and displace towards the river. As that displacement increases, the bending moment, which is the centrically applied load to the timber piles, increases, and then at some point it can no longer handle the increase in stress, and the piles fail.

***Testimony by Louis Bruno***

In an affidavit, dated April 19, 2011, Bruno stated that he had been employed by Fred, Todino & Sons, Inc., as its office manager since 1993, and, in that position, he had numerous opportunities to observe the condition of the relieving platform. Bruno stated that, on October 30, 2002, he observed a small sinkhole that developed on the relieving platform, which was not there previously. Todino asked Bruno, who is an amateur photographer, to photograph the sinkhole. According to Bruno, each day following the allision, he "observed the sinkhole getting bigger and cracks forming along the length of the relieving platform, as well as, a portion of the retaining wall." Additionally, Bruno observed the relieving platform begin to separate or sink from the building itself. Bruno was asked by Todino to continue taking photographs as conditions changed, which he did, until November 11, 2002. Attached to Bruno's affidavits are the following photographs he took during the period October 30 to November 11, 2002: (a) Exhibit 7, the first photograph Bruno took on October 30, 2002, showing a sinkhole; (b) Exhibit 8, a photograph of the same sinkhole as is shown in Exhibit 7, taken by Bruno "a few days after

October 30, 2002," and showing "the sink hole getting larger in size"; (c) Exhibit 9, "a photograph of the sinkhole which had been filled with gravel," showing "the cracks in the relieving platform in the vicinity of the sinkhole during the first week of November 2002 which is the date the photograph was taken"; (d) Exhibit 10, a photograph taken "during the first week of November 2002," showing "the sinkhole getting larger" and "the cracks that had developed"; (e) Exhibit RR, a photograph taken "between the period of October 30, 2002 and November 11, 2002," showing "the sinkhole getting larger in size and cracks forming on the relieving platform from the sinkhole and running southerly throughout the entire relieving platform"; (f) Exhibit SS, a photograph taken "during the period of October 30, 2002 through November 11, 2002," showing "the large crack running from north to south along the length of the relieving platform in close proximity to the building;" (g) Exhibit II, a photograph taken "during the period of time from October 30, 2002 through November 11, 2002," showing "large cracks that had developed in the retaining wall subsequent to October 30, 2002"; and (h) Exhibits 11 and 12, photographs "of a portion of the relieving platform that was taken by [Bruno] on November 11, 2002 after the relieving platform had collapsed."

On cross-examination, Bruno testified that he never took photographs of the Zerega property prior to October 30, 2002, as the company moved to those premises about a year prior to October 30, 2002. Bruno had never seen the platform before the company's move to the Zerega property. He stated that "everything was pristine" when the company moved to the Zerega property, including the platform, which was already asphalted. He testified that the last time he walked on the relieving platform, before October 30, 2002, was sometime in August 2002, because it was snapper season and his son was there fishing. At that time, he did not notice any cracks on the relieving platform. He testified further that he would be able to see the cracks shown in Exhibit QQQQQ with the naked eye, looking out the second-story window from the building on the Zerega property, but he had not seen any cracks prior to October 30, 2002. He stated that he took the photograph that is Exhibit A to his declaration of May 30, 2006, showing the relieving platform in a flooded condition, the first week of November, which "was probably referring to the workweek, Monday the 4th through the 8th," but also could have been referring to the week of November 1st. Bruno testified that, during the period he was taking the photographs, October 30 to November 11, 2002, he did not see any excavation on the Zerega property. Bruno explained that when he stated that he took the photograph that is Exhibit 8, "within a few days after October 30, 2002," he meant "within the next day or two after this one . . . Like Thursday or Friday." He testified that he took the photograph that is Exhibit 9, after he took the photograph that is Exhibit 8, which would mean "[a]fter Thursday and Friday . . . more than likely on Monday." Bruno stated that the photograph that is Exhibit 10, showing the same sinkhole as the photograph that is Exhibit 9, was most likely taken either at the end of the day on November 4 or the following day, November 5, 2002. According to Bruno, Exhibit RR also shows the same sinkhole larger in size and, although not "exactly sure," he must have taken it "[b]etween the 6th and 7th" of November 2002. Bruno testified that he was not aware that the hole depicted in Exhibit RR resulted from an excavation undertaken by the plaintiffs. Bruno also stated that Exhibit HH, which he took later than Exhibit RR, shows "the progression" of the sinkhole. He explained that, although he took the photograph which is Exhibit QQ, depicting a man wearing a safety vest and standing in the hole, he did not know what the man was doing or why he was there, and he did not inquire about it. When questioned about the sequence and the time frame of the photographs, Bruno admitted he did not know when between October 30 and November 11, 2002, he took any of the photographs, except for Exhibit 7, which he was certain he took on October 30, 2002.

When Bruno was asked about the difference between Exhibit 9, showing dense green foliage on the trees in back of the platform, and Exhibit A, showing significantly less foliage on the same trees, Bruno stated that the "wind could have been blowing. I don't know. I am not an arborist." Moreover, Bruno was unable to explain the difference between the state of foliage on the photograph that is Exhibit NNNNN, which he took between October 30 and November 11, 2002, showing scarce fall-colored leaves on the trees in back of the platform, and Exhibit 9, taken within the same period of time, showing very dense green foliage on the same trees. He testified that he did not know why a tree could have significantly less leaves in a matter of a few days, "other than maybe different films produce different colors, different exposures produce different lighting produce different looking things." Bruno testified that the cracks depicted in the photograph that is Exhibit II did not exist prior to October 30, 2002, because he "would have noticed them" from "the copy room where we gaze out, or . . . I was out there a few times and I would have noticed that and I would have said something."

***Testimony by Steven Schneider***

By an order, dated April 4, 2011, the Court determined: (a) to permit Schneider's testimony about the presence of sheathing on the plaintiffs' relieving platform, as well as the effect wind and the creek's current had on the force with which the barge might have allided with the Zerega property; and (b) that Schneider is not qualified to give opinion testimony about navigating a vessel through Westchester Creek. In an affidavit, containing his direct examination trial testimony, dated April 22, 2011, and submitted to rebut the testimony of London and Ellman, as allowed by the Court's April 4, 2011 order, Schneider stated that he has a degree in engineering from the United States Merchant Marine Academy in Kings Point, New

York, where he took courses in seamanship, navigation and full navigation. Schneider has a license from the United States Coast Guard as a Third Assistant Engineer. He stated that he is qualified "to review and critique the behavior of various vessels under all types of navigable conditions." Schneider explained that he is familiar with the Westchester Creek and its currents, which are affected by a variety of factors, including tides.

Attached to Schneider's affidavit is Exhibit 13, a chart prepared by NOAA, showing that between 3:00 p.m. and 3:30 p.m., on October 29, 2002, the water level was rising toward the high tide which occurred at 4:52 p.m. According to Schneider, a "rising tide would have the effect of increasing the speed of the currents in the Westchester Creek to between 4 and 6 knots." Schneider opined that "[t]hese currents would propel a stationary barge positioned opposite Plaintiffs' relieving platform towards the relieving platform at the speed of the currents." Schneider stated that he reviewed NOAA Tides and Currents data, Exhibit WWW[2], which shows that between 3:00 p.m. and 3:30 p.m., on October 29, 2002, in the vicinity of the Westchester Creek, an average wind speed of 6.8 knots coming from a northeasterly direction was noted. Schneider explained that the wind and the currents would propel the barge into the plaintiff's relieving platform at a speed of approximately 6 knots. "A barge with a gross weight of 1347 GRT[,] traveling at 6 knots would impact with a force of over four (4) million pounds, causing significant damage if it collided with Plaintiff's relieving platform." He opined that such an impact would compromise the entire structure, causing sinkholes and cracks to develop, separation of the building structure from the relieving platform, and a collapse. Schneider

[2] Schneider referred erroneously to Exhibit WWWW, NOAA Tides and Currents for Kings Point, New York, from October 28 to October 29, 2002, as Exhibit WWW. No Exhibit WWW was received in evidence.

testified that he reviewed Exhibits 7, 8, 9 and 10, as well as Exhibits RR and SS, and that, during the more than fifty times he visited the Zerega property between 2001 and 2002, he never observed any evidence of the sinkholes or cracks in the relieving platform, or of the separation between the building and the relieving platform, as shown in those photographs. Schneider opined that the cracks in a portion of the cap of the retaining wall, which runs north to south along the relieving platform, that are depicted in Exhibit II, "developed as a result of an impact to the retaining wall from the water side, by a large vessel such as a barge." According to Schneider, the "cracks would not have occurred immediately after impact but rather would appear gradually over the next several days following the impact. The cap of the retaining wall was relatively new and in all of the times that I observed the Plaintiffs' relieving platform prior to October 29, 2002, I never observed any cracks in the cap of the retaining wall." In Schneider's opinion, the collapse of the relieving platform was not caused by the digging of a "test pit" or by the "test pit's" filling with water. Schneider stated that Exhibits 11 and 12, photographs of portions of the relieving platform taken after the collapse, show evidence of the remaining sheathing or planking which was holding the earth beneath the relieving platform.

On cross-examination, Schneider testified that before the alleged allision, sheathing existed on the creek side of the relieving platform, "[a]pproximately a foot in." He stated that the "original relieving platform was basically sheathing and then they poured a concrete face on it." Schneider testified that Exhibit TTTTT, a photograph of a cross section of the remaining south wall, does not show the wooden structure sheathing because "[i]t's gone. . . . It was in the section that was gone." Similarly, he testified that the sheathing "is gone" from the face of the retaining wall on the north side, shown in the photograph that is Exhibit AAAAA. Schneider stated that the north side and the south side of the platform were built at different times and "the original relieving platform had a wooden . . . sheathing." Schneider testified:

> There's more for a relieving platform than the sheathing. There's also that structure itself. The problem here is that the structure itself was pushed in, sprung out and everything that was holding the dirt up collapsed and the dirt went down. When the dirt went down, the concrete where there was a sheathing that wooden [sic] supported it went down, the concrete broke off.

According to Schneider, the ripping of the creek side sheathing was always his secondary conclusion. Schneider was asked about his statement, from his May 31, 2006 declaration: "When I inspected the bulkhead structure on the premises between 2001 and 2002, I observed that the bulkhead structure is essentially comprised of wood pilings, between approximately eight to ten inches in diameter, with a wooden sheathing beneath the piles, and a concrete running cap and base," because, according to the defendant, its Exhibit AAAAA did not show wooden sheathing beneath the piles. Schneider explained that he misspoke when he said "a wooden sheathing beneath the piles," and that he meant "beneath the relieving platform itself." Schneider testified that the theory he presented in his May 31, 2006 declaration, that a barge might have "picked up a pole, carried the pole into a similar situation, [and] the pole ripped up the sheathing," is impossible, except that the "pole could have or a debris could have been pushed into the underside of the relieving platform and essentially did the same thing." Although Schneider admitted that the theory of debris being pushed into the underside is different from the theory that the pole ripped up the sheathing, he stated that was "actually what my mind was thinking."

Schneider testified that he was not aware or told that the "test pit" was dug when he inspected the platform in August 2005, and he first learned about that in early 2011. Schneider stated that Todino told him that heavy equipment was not used to dig the test pit. According to Schneider, not using heavy equipment is important, "[b]ecause if you used a backhoe or a device like that, you would possibly damage the structure itself." However, Schneider admitted that he did not know if a test pit was actually dug or what equipment was used to dig the test pit. Schneider stated he assumed that the pit shown in Exhibits HH and YY was not the excavation, but if it was, it would be a big problem.

Schneider opined that the barge did not come into contact with the curbing of the relieving platform, but, rather, the "[l]ower section of the barge where it bulges out" came into contact with the pilings below the retaining wall, and "the impact occurred not in one spot, but in a series of spots as the barge slid against the relieving platform." According to Schneider, "[p]ortions of the relieving platform were pressed in as the barge rolled against it until the captain was able to get enough back to pull out of." Schneider explained that the curb of the platform was pushed in 18 inches and,

> as it springs back out, the cracks are compressed - - the interior . . . of the crack is the tension, the exterior is in compression. So when it comes back it sets, so you don't really notice cracks. The cracks then show grow in time, because the deformity is there, and then it grows, because it moves as things go with time.

Schneider explained the reason why cracks would not be noticed if concrete is moved 18 inches:

> [Y]ou're moving a foot and a half over a long wall, like a ripple, and you have a distortion between the base and the concrete, the concrete is going to hold back the distortion at that point whereas the transmitted load into the wood is going to be at a different, the 18 inches, whereas the concrete may not see that 18 inches all at once because it's having a double moment on the pile, if you will. . . . It's very typical to have the concrete move like that and not show anything until a week later.

Schneider explained that, because "the outside is under compression, and the inside is under tension, the first place the crack develops is on the inside, because it's greater, this is a greater space. You're stretching the concrete on the inside."

Schneider was asked about the basis for his statement, in his April 22, 2011 affidavit, that a "rising tide would have the effect of increasing speed of the currents in the Westchester Creek to between 4 and 6 knots." He explained that in making this statement, he relied on: (1) "the captain from Sea Tow who handles that area"; and (2) his "own observations when [he] was there." Schneider admitted he did not see the NOAA publication entitled "Tidal Current Tables 2011 Atlantic Coast of North America," in which a current diagram for the East River, New York, is explained. Schneider testified that a rising tide was called "ebb tide" and that he did not "know the word for the other way." He admitted that he realized that the rising tide is actually not the ebb tide, and that, despite using tide charts all the time, he had never heard about a "flood tide" and he did not know what "slack water" is. Schneider agreed that, on October 29, 2002, at the time of the alleged allision, 3:30 p.m., the tide was the current which was rising in a northerly direction and the barge and the tug were waiting for the bridge to open so they can go south. Although Schneider admitted that the flood tide at Whitestone Point, the closest area to the Westchester Creek, is "1.3 knots, 1.6 knots, 1.3 knots," he testified that the currents in the Westchester Creek are "[s]ubstantially different" because the volume of water going to high tide pouring into that narrow stream increases the velocity of the current." Schneider explained that he determined the speed of the current by

> call[ing] up the local expert who handles this and that is Sea Tow, because there is no chart for the Westchester Creek and it has no relevance to what's at Hell's point in the East River. It just doesn't work that way. There's a little creek like this called Morgan Creek in New Jersey. The tide reaches 11 and 12 knots and if I followed what the current was in the main portion, it would be 2 knots. It's a function of how the water flows into a narrow channel and the result is the current that you get.

Schneider testified that he called Sea Tow to find out about the speed of the current in Westchester Creek in 2001, and he also called "four months ago and asked them if there's any change. He said no." The wind was coming from the northeasterly direction, according to NOAA's wind chart. Schneider stated: "You've got the wind pushing the barge and you've got the current pushing the barge. The combination of the barge and the wind is pushing the barge into the relieving platform."

On re-direct examination, Schneider testified that he did not change his opinion about the primary cause of the collapse, which was "[t]hat the allision occurred and the structure was damaged, and that structure, meaning the frame, the entire frame of the relieving platform sprung in and then sprung out and the result was a structural deformation and structural instability created within the relieving platform which resulted in the collapse." Schneider stated that he believed the cracks shown in Exhibit I were caused by an allision from the water side of the relieving platform and not by settling because they were not typical of settling cracks in any way.

## FINDINGS OF FACT

The following findings of fact are based on the entire record in this action:

Plaintiffs Zerega Avenue Realty Corp. and Fred Todino & Sons, Inc. are corporations which, at all relevant times, owned the Zerega property. They purchased the Zerega property in or about December 2000. Zerega property, abutting Westchester Creek, measures approximately 62,000 square feet and contains a one story office building measuring about 8,000 square feet and a bulkhead structure, slightly more than 211 feet long. Defendant Hornbeck at all relevant times, owned and operated the tug Stapleton Service and the oil barge E-2201, which is about 250 feet long.

On October 29, 2002, while pulling the barge on gate lines, the tug was traveling southbound in Westchester Creek. The gate lines connected the stern of the tug to the bow of the barge, one on each side. The port gate line was slightly shorter than the starboard gate line in order to cant the barge so that the stern is more to the port side. The barge was in a light condition. Mate Spurlock operated the tug, assisted by a trainee Mate, Eric Fuerstinger ("Fuerstinger"). At approximately 3:30 p.m., the tug and the barge were in the immediate vicinity of the Zerega property, at a very slow drift, while waiting for the Unionport Bridge to open. On the approach to the Unionport Bridge traveling southbound, the starboard side of the barge passes by the Zerega property.

The Unionport Bridge took longer than usual to open. As Spurlock waited for the bridge to open, he became concerned that the stern of the barge was coming too close to the retaining wall of the Zerega property. The stern of the barge drifted toward the Zerega property's dock. Spurlock was concerned the barge would come into contact with the retaining wall because of the narrowness of the channel and, furthermore, if the wind picked up or gusted, the barge in its light condition could hit the retaining wall. He instructed Fuerstinger to watch the barge closely and to let him know if the barge is close to the retaining wall of the Zerega property. Apprehensive about the wind, Spurlock asked Fuerstinger to check the barge's status. Thereafter, Fuerstinger informed him that the barge was drifting toward the Zerega property's retaining wall. Spurlock twisted the tug to starboard in order to straighten the barge. This maneuver put tension on the port gate line, which rotated the barge away from the retaining wall of the Zerega property.

While he operated the tug, Spurlock could not see the rear end of the barge. Fuerstinger, who was inside the tug's wheelhouse at that time and located in front of Spurlock, did not have a direct view of the rear of the barge, on the starboard side, or, as he stated, "the 90 degrees around the corner of the starboard side."

Although Spurlock's affidavit containing his direct examination trial testimony indicated that the wind, at that time, was very light and blowing from the starboard side, moving the tug and the barge away from the Zerega property, he stated in his pretrial deposition testimony that the wind was blowing toward the dock. Fuerstinger testified that the wind was light and blowing off the dock. However, Fuerstinger also testified, at his pretrial deposition, that the wind was light, and it may have been blowing toward the dock. The Court finds that the wind was blowing toward the dock because that direction is consistent with Spurlock's statements about his concerns with the wind and the concomitant actions he took respecting his concerns about the effect of the wind on the barge.

At the time the barge drifted toward the Zerega property, Spurlock was looking forward toward the Unionport Bridge opening and did not know whether the barge came into contact with the retaining wall. At his deposition, Spurlock stated he would not have felt any contact with the retaining wall if the barge hit it. According to Spurlock's deposition testimony, Fuerstinger would not have been able to tell, with certainty, whether the barge hit the wall.

On October 29, 2002, at approximately 3:30 p.m., Todino, president of Zerega Avenue Realty Corp., was meeting with Michael Justino ("Justino"), a salesperson for Caterpillar, Inc., in Todino's office, located at the southern end of the office building on the Zerega property. Todino testified that, while sitting with Justino at a table, two feet away from the office window, he suddenly felt a big jolt. Todino jumped up, looked out the window and observed a barge up against and striking approximately the center of the bulkhead structure. He yelled something to the effect that the barge hit the wall. Todino and Justino ran outside to the relieving platform and Todino observed the barge, with an inscription "Energy 2201" on its side, proceeding southbound toward the Unionport Bridge, towed by a tug. Todino observed the barge bounce off both sides of the Unionport Bridge.

Justino testified that, while he was meeting with Todino, in the office building on the

Zerega property, on October 29, 2002, at approximately 3:30 p.m., he felt a jolt. He looked out the office window immediately and observed a barge up against and striking a portion of the plaintiffs' property. Justino exclaimed something to the effect that the barge just hit Todino's property. He rushed out of the office immediately with Todino, and observed the barge being pulled away from the plaintiffs' property. Justino then observed the barge swerve back and forth, as it pulled away, and then strike the sides of the Unionport Bridge. Justino's October 29, 2002 meeting did not result in any sale, rental or lease of equipment to the plaintiffs, and Justino has not had any business dealings with the plaintiffs since that time.

The Court finds Justino's testimony credible. Although Todino's testimony about feeling a "big jolt" in October 29, 2002 is corroborated by Justino's testimony that he too felt a jolt, the Court finds that Todino is not a credible witness because of his interest in the outcome of this case and his testimony regarding the excavation of a large area of the platform decking, as noted below, which contradicts directly the record evidence.

On October 29, 2002, at approximately 3:30 p.m., Laura Bruno, vice-president of Fred Todino & Sons, Inc., was performing clerical work in her office, located in the center section of the office building on the Zerega property, with windows overlooking the side of the building opposite to the side whose windows overlook the Westchester Creek. At that time, she heard Todino and Justino yelling, in another office, something to the effect that a barge hit the wall. She then went to the photocopy room, across from her office and, upon looking through the window overlooking Westchester Creek, observed a barge being pulled away from the bulkhead structure by a tug.

Bruno, an office manager employed by Fred Todino & Sons, Inc., testified that, during the afternoon of October 29, 2002, at approximately 3:30 p.m., he was performing work on the computer servers in an office located toward the center section of the office building on the Zerega property, when he felt a thump and heard Todino and Justino yelling in another part of the building that a barge hit the retaining wall. Bruno saw Todino and Justino hurrying outside. He went to Todino's office, looked through the window and observed a barge being pulled away by a tug from the bulkhead structure on the Zerega property. Bruno testified that the computer room in which he was working was between 125 and 150 feet away from Todino's office. However, Bruno testified during his deposition that, on October 29, 2002, around 3:30 p.m., he was working in the computer room when Todino called him. According to Bruno's deposition, he was walking down the hallway when he felt a bump and heard Todino yell that the barge just hit the Zerega property. On cross-examination, Bruno was unable to recall whether he was standing or walking when he felt the thump.

Bruno testified that he took photographs of the relieving platform between October 30 and November 11, 2002, including Exhibits A, B, C, D, E, and F, attached to his May 30, 2006 declaration, Exhibits 7, 8, 9, 10, 11, 12, attached to his April 19, 2011 affidavit, and Exhibits GG, HH, II, JJ, KK, LL, MM, NN, OO, PP, QQ, RR, SS, TT, UU, VV, WW, XX, YY, and ZZ. None of the photographs is dated and Bruno could not recall on what specific date between October 30 and November 11, 2002, he took any of the photographs, apart from Exhibit 7, which he stated he took on October 30, 2002, because he remembered it was the day after the allision, and Exhibits 11 and 12, which he stated he took on November 11, 2002, because that is the day the relieving platform collapsed. Bruno testified that the photographs he took show a natural progression from a small hole, depicted in Exhibit 7, to the large hole depicted in Exhibit HH. According to Bruno, the circular hole depicted in Exhibit 7 progressed naturally to the larger semi-circular hole shown in Exhibit 8, then to the larger hole depicted in Exhibit 9, and ultimately to the very large hole depicted in Exhibit MM.

Bruno testified that he took Exhibit II, a photograph of a crack near one of the bollards on the relieving platform, from one of the windows of the building on the Zerega property. He stated that the last time he walked on the relieving platform, before October 30, 2002, was sometime in August 2002 and he did not notice any cracks on the relieving platform. He also stated that he would be able to see the cracks shown in Exhibit QQQQQ with the naked eye, looking out the second-story window from the building on the Zerega property, but he had not seen any cracks prior to October 30, 2002. Bruno did not see or hear any excavation work on the relieving platform between October 30 and November 11, 2002, and, although he took pictures of the workers inside the very large hole, he did not know or inquire about what they were doing there. Bruno was unable to explain the difference in the color and density of foliage on the trees near the Zerega property, shown in different photographs he testified he took between October 30 and November 11, 2002.

In light of the inconsistencies in Bruno's testimony, the Court finds that Bruno is not a credible witness. For example, Bruno gave inconsistent statements about his location at the time of the alleged allision. His statement that he was located between 125 and 150 feet from Todino's office, which is at the southern end of the building, is incredible. If Bruno was in the computer room when he felt the thump, which according to him was located toward the center section of the building, and if he was between 125 to 150 feet away from Todino's office, which was at the southern end of the building, that would suggest that the building is approximately twice as long as that distance, i.e. between 150 and 300 feet. This is impossible, given that the entire relieving platform is slightly more than 211 feet long and exhibits received in evidence demonstrate that the building's length was, at most, two-thirds the length of the platform, which would be approximately 140 feet. If Bruno was walking in the hallway from the computer room toward Todino's office when he felt the thump, he could not have been between 125 and 150 feet away from Todino's office—if the computer room is located toward the center of the building—given that the building is not between 150 and 300 feet long.

Bruno did not explain how it is that he could notice details from the windows of the building on the Zerega property with his naked eye, such as cracks in the curb of the relieving platform, whereas he did not see, hear or notice that any excavation was done on the relieving platform between October 30 and November 11, 2002. He was not able to explain the crawler machine track, depicted in Exhibit YY, a photograph that he took, or remember that he saw any such equipment near the very large hole with a worker standing in it, as depicted in that photograph. Bruno was also unable to explain how the vertical timber sticking out of the very large hole, depicted in Exhibit MM, could be there as a result of the natural progression of the hole becoming larger, other than saying that the timber might have been flat before being placed in a vertical position.

Similarly, Bruno was unable to explain the striking difference between the lush green foliage on the trees depicted in back of the relieving platform in Exhibit 9 and the scarce, fall-colored foliage on the same trees in Exhibit M, both of which Bruno testified he took between October 30 and November 11, 2002. Even assuming that Bruno took all the above-mentioned photographs between October 30 and November 11, 2002, those photographs do not establish the natural progression from the hole depicted in Exhibit 7, to the very large hole, depicted in Exhibits M and MM, that Bruno took. Accordingly, Bruno's testimony is given no weight in considering the issues in this case.

Bowie testified about his November 12, 2002 e-mail message to Hornbeck's general manager, Stanley Chelluck, and about his telephone conversation with Laura Bruno. Bowie's testimony was not given weight in light of the inconsistency between Bowie's e-mail message indicating which crew members were involved in the alleged allision and the October 29, 2002 daily log, indicating which crew members were on duty on the day of the alleged allision. This inconsistency undermines Bowie's credibility.

Although Laura Bruno's recollection of events on October 29, 2002, corroborates that of Bruno and Justino, to some extent, her credibility was undermined by the following. Laura Bruno denied: (a) ever speaking with Bowie; (b) calling Hornbeck to report that its barge hit the dock; and (c) inquiring with the Unionport Bridge about the name of the barge. However, nothing in the record explains how or why Bowie would acquire the information he conveyed in his e-mail message about a conversation with Laura Bruno, absent the occurrence of a conversation with her. Accordingly, the Court finds that Laura Bruno failed to give truthful testimony regarding her interaction with Bowie. This failure, as well as her interest in the plaintiff's business, warrants the Court in finding her incredible and not giving any weight to Laura Bruno's testimony.

Power inspected the barge on December 3, 2002, when it was loaded and deep in the water, and on December 10, 2002, when it was empty and fully exposed, except for the stern, which was approximately three feet under water. Based on Power's testimony and the entire record, the Court finds that: (1) the barge log did not indicate that the barge had been repaired after October 29, 2002; and (2) at the time of Power's inspections, on December 3 and 10, 2002, Power did not observe, on the barge, either fresh black paint or any of the indicators Power enumerated that "could" signify an allision with a dock occurred. However, the Court does not give weight to Power's testimony because Power inspected the barge on December 3 and 10, 2002, five and six weeks respectively after the October 29, 2002 allision is claimed to have happened. That: (1) Power did not observe any "fresh" or "recent" paint at the time of his inspection; (2) the barge log does not indicate any repairs were made to the barge after October 29, 2002; and (3) Power did not observe any of the indicators of an allision he enumerated, does not establish that no allision took place. As Power testified, the indications on the barge of an allision "could" include some of those he enumerated and which he did not observe. However, he did not testify that the indications of an allision "must" include those he enumerated or any others. No testimony was presented showing that the allision of the barge with the Zerega property would necessarily include any of the indicators Power enumerated, including "set ins" or "cracks in the shell plating," or what other indicators of an allision of the barge with the Zerega property that Power did not enumerate might exist, and whether an allision would result necessarily in the presence of those other indicators. No evidence was presented to show that the paint on the barge's starboard side which came into contact with the Zerega property, would necessarily have to be damaged to such an extent that it would need to be repaired. The record demonstrates that, since October 29, 2002, the barge had been in operation regularly, being deep in and out of water, as it is loaded and unloaded, and sustaining customary wear. Although Power testified that, if an allision occurs and a fendering system is in place, "there would be some sort of indication on the barge," and the evidence of impact would depend on a variety of factors involved, he did not indicate what those factors might be here, given the evidence in the record of the existence of a fendering system on the relieving platform. Moreover, Ellman's statement that during his December 2002 visit to the Zerega property, "[t]here was no indication that the fendering system that was on the outside of the dock had sustained recent damage," is not useful for an understanding of what evidence, if any, would be present if an allision occurred where the fendering system is in place, because Ellman did not identify what such an indication might be and whether its presence would be the sine qua non under the circumstances of this case, and he is not an expert on vessels or damage on vessels.

The relevance of Power's observation of the portion of the platform that did not collapse to his conclusion that the barge did not sustain damage and no allision occurred, is diminished by the fact that a very small portion of the retaining wall and the platform remained standing at the time of his observations. Power's expertise is in carrying out "surveys on all types of vessels, inspecting and surveying steel hulls for damage." Although Power's report included a collapsed dock inspection, Power did not demonstrate that he has expertise in surveying and inspecting docks or collapsed docks for damage from an allision by a barge. He provided no evidence about the indications that would appear on the dock upon an allision of the barge generally and in this case specifically, or whether those indications existed on the remaining part of the platform or the collapsed part of the platform that was underwater. Moreover, his report about the divers' findings concerning the collapsed portion of the platform that was underwater, does not aid the Court in understanding whether an allision occurred because the collapsed portion was underwater for some period of time, and nothing in the divers' findings tend to support any conclusion about the contact between the barge and the relieving platform. Therefore, Power's testimony about the absence of the enumerated indications, on the barge, of an allision and the absence of "fresh" or "recent" paint on the starboard side of the barge, as well as the evidence that no repair had been made to the barge after October 29, 2002, are not given weight in determining whether an allision occurred, as they do not show, with any degree of certainty, that any indications of an allision would necessarily exist, on the starboard side of the barge, in the circumstance of this case.

The Court finds that, on October 29, 2002, around 3:30 p.m., the barge allided with the relieving platform of the Zerega property. This finding is based primarily on: (a) Spurlock's testimony that he was concerned that the stern of the barge was drifting too close to the Zerega property; (b) Fuerstinger's confirmation to Spurlock that the stern of the barge was drifting too close to the Zerega property; (c) Spurlock's twisting of the tug to the starboard side in order to straighten the barge; (d) Spurlock's statements that neither he nor Fuerstinger would have felt if the barge allided with the relieving platform; (e) the fact that neither Spurlock nor Fuerstinger could see the stern of the barge; and (f) Justino's testimony describing what he experienced and observed on that day. In determining whether the allision occurred, the greatest weight has been given to the unrebutted testimony of the disinterested witness, Justino. His testimony, when the record as a whole is considered, establishes to the Court's satisfaction that the plaintiffs have proved, by a preponderance of the evidence, that the barge allided with the Zerega property, on October 29, 2002, at approximately 3:30 p.m.

With respect to the sinkhole and cracks on the platform, as well as the excavation of the test pit, the Court finds as follows: Todino testified that he never told London that he had exposed a large area of the platform decking. However, London reported in his daily activity report of November 6, 2002 that, after an

> extreme high water event about 3 weeks ago, they noticed cracks and sinkholes developing between the bulkhead and the pile supported building about 25 feet away. They believed that fill was leaking out from behind the timber sheeting cut off wall and the decking of the relieving platform. When they excavated down they found the deck in good condition but pushed up at the back row over the batter piles. . . . The owner has exposed a large area of the platform decking.

London and Schneider testified that digging a test pit is a proper procedure to employ to determine the cause of a sink hole. The sinkhole(s) and the crack(s) developed on the platform prior to its collapse. The Court finds that the plaintiffs excavated a test pit prior to November 6, 2002, in order to determine the cause of the crack(s) and sinkhole(s) that developed on the relieving platform. The Court finds further that, prior to the collapse of the relieving platform, the office building separated from the platform.

After reviewing the entire record in this case, the Court finds that the testimony of Spurlock, Fuerstinger and Paul Cirillo concerning the presence of sinkholes on the Zerega property lacks credibility and that testimony is rejected for the reasons explained in the Court's October 23, 2007 Opinion and Order, since the additional evidence received on remand did not affect the nature and substance of that prior testimony.

London's 2002 and 2005 opinions about the cause of the relieving platform's collapse do not aid the Court in understanding what caused the collapse because they were not based on any investigation and have been superseded by London's more recent opinion, formulated in 2011, and imparted when he testified on remand. Therefore, London's 2002 and 2005 opinions about the cause of the relieving platform's collapse are not given any weight.

On remand, London opined that the barge's allision with the relieving platform would be the event that triggered the relieving platform's collapse, and the high water event that occurred after November 6, 2002, hastened the collapse and led to progressive cracking in the platform. London stated that he was unable to tell, with any degree of certainty, what particular event might have caused the collapse, but he opined that a series of events contributed to the collapse. London's opinion testimony is accorded no weight because London changed his opinion every time he acquired a new piece of information, even from one day to another while he testified on remand. This demonstrates to the Court that his opinion was not based on a thorough or complete investigation of the facts and circumstances of the case. Moreover, London is not familiar with any standards used by the engineers in his field when evaluating the cause of a marine structure collapse or whether what he does concerning any given task follows an accepted engineering standard. Consequently, the Court is unable to determine the extent to which London's techniques and methods in determining the cause of the collapse are reliable, if at all. Additionally, London could not state, with any degree of certainty, what event might have caused the collapse of the relieving platform. His inability to do so was of no aid to the Court in determining the issue of causation in this case.

Ellman opined that the cause of the collapse was the platform's inability to resist force created by lateral load coming from the land or building side toward the water. According to Ellman, the extreme high water event in combination with ponded surface water and the reduction in lateral load capacity of the relieving platform, due to the removal of overlying fill and the corrosion and disrepair of the connecting hardware, resulted in the failure of the platform. Ellman's opinion is accorded no weight because it is based on assumptions for which no credible evidence exists in the record, such as that the sinkhole predated the allision, or that the hardware connecting the wood was deteriorated. Although Ellman was entitled to base his opinion, inter alia, on assumptions, the assumptions he made here are not plausible in light of the record evidence. In forming his opinion, Ellman relied a great deal on the information supplied by London, including that London observed two bolts, one of which was split in two parts and the other was corroded. However, Ellman admitted that, in forming his opinion that the hardware was deteriorated, he did not know how many bolts London inspected or how many he found deteriorated. Therefore, Ellman's opinion, predicated on the assumption that the hardware was deteriorated, is not reliable. Ellman testified that if the sinkhole did not predate the allision, that would be a significant fact that might change his opinion, which means that Ellman's opinion might be reliable only to the extent that the sinkhole predated the allision. Ellman did not provide a plausible explanation of why he did not amend his report when he changed his opinion based on his learning, after his deposition but prior to preparing his affidavit of direct examination trial testimony, of the high-water events. Additionally, Ellman's testimony was not credible because he testified that he visited the platform for the first time on December 3, 2002, but he failed to mention that visit in his report. Ellman's explanation, that his December 3, 2002 visit "was not necessarily for the purpose of the investigation," contradicts directly his testimony that, on December 3, 2002, he went to the platform and inspected the site for several hours. Similarly, Ellman did not mention in his report that he viewed and took photographs of the Zerega property when he visited it on December 10, 2002. He did not provide any explanation of why he failed to mention in his report that he viewed and photographed the Zerega property on December 10, 2002, except to state that "there was no attempt to hide this information." Thus, the Court finds Ellman incredible as a witness.

Schneider opined that the allision, which occurred when wind averaging 6.8 knots blowing from a northeasterly direction and the creek's current, which was between 4 and 6 knots, propelled the barge against the platform, damaged the entire frame of the relieving platform, which sprung in and then sprang out, resulting in a structural deformation and creating structural instability within the relieving platform and, consequently, its collapse and ensuing damage. According to Schneider, the cracks on the platform were caused by an allision occurring from the water side of the relieving platform. The Court gives weight to Schneider's opinion testimony because: (a) Schneider visited the platform more than 50 times between 2001 and July or August of 2002, as well as in 2005; (b) he was the only expert witness who observed the platform and the office building before the allision; and (c) he was a credible witness.

Schneider's secondary theory, that the ripping of the creek side sheathing caused the damage to the plaintiffs' property, is rejected by the Court because of its implausibility. Schneider's inability to remember tide names and the fact that he mixed them up while testifying, as well as his testimony regarding his personal experience navigating a boat are irrelevant to his opinion, as he was not qualified to testify as a navigation expert.

Stanley M. White ("White"), a professional engineer employed by Ocean and Coastal Consultants Engineering, P.C., offered credible opinion testimony, at the 2006 trial, about the damages arising from the collapse of the Zerega property's wharf structure, determining that approximately 205 linear feet of relieving platform need to be replaced in-kind and finding the following structural damage to the office building: (i) a vertical crack in the north-end exterior wall; (ii) an interior vertical crack, from the floor to the ceiling, in the interior east wall; (iii) a horizontal crack, between the recessed windows, in the interior east wall; (iv) interior floor slab deterioration, owing to moisture and, settling and cracking adjacent to the east wall; and (v) ceiling deterioration, on the first floor. White estimated the probable cost: (a) for the marine work needed on the wharf's structure of the Zerega property is $1,450,000, for the fiscal year 2003, including a contingency of 25%, resulting from a lack of final design documents, which would detail the construction and materials to be used in repairing the bulkhead structure; and (b) to repair the building, including a contingency of 25%, based on the lack of final design documents which would detail the construction and materials to be used in repairing the office building, is $55,353. No evidence in the record on remand affects or, in any way, alters White's opinion testimony. Given the Second Circuit's direction that "the amount of damages need not be retried," Zerega Avenue Realty Corp., 571 F.3d at 215, and based on the entire record, the Court repeats and adopts anew White's opinion testimony findings about the damages and the cost of repair.

## LEGAL STANDARD

"In admiralty cases, federal maritime law applies where it exists" and "federal maritime law incorporates common law negligence principles." Becker v. Poling Transp. Corp., 356 F.3d 381, 388 (2d Cir. 2004). "To establish a prima facie case of negligence, a plaintiff must demonstrate (1) a duty owed by the defendant to the plaintiff, (2) a breach thereof, and (3) injury proximately resulting therefrom." Solomon v. City of New York, 66 N.Y.2d 1026, 1027, 499 N.Y.S.2d 392, 392 (1985).

### *The Presumption of Fault*

In admiralty, when a vessel allides with a stationary object, "the moving vessel is presumed to be at fault and bears the burden of rebutting the presumption by showing that the allision was the fault of the stationary object, that the moving vessel acted with reasonable care, or that the allision was an unavoidable accident." Zerega Ave. Realty, 571 F.3d at 211 (citing The Oregon, 158 U.S. at 192-93, 15 S. Ct. at 806-08).

### *Causation*

> In order to prevail at trial in a negligence case, a plaintiff must establish by a preponderance of the evidence that the defendant's negligence was a proximate cause of plaintiff's injuries. A plaintiff is not required to exclude every other possible cause, but need only offer evidence from which proximate cause may be reasonably inferred. "
>
> Burgos v. Aqueduct Realty Corp., 92 N.Y.2d 544, 550, 684 N.Y.S.2d 139, 141 (1998).
>
> The concept of proximate cause, or more appropriately legal cause, has proven to be an elusive one, incapable of being precisely defined to cover all situations. This is, in part, because the concept stems from policy considerations that serve to place manageable limits upon the liability that flows from negligent conduct. Depending upon the nature of the case, a variety of factors may be relevant in assessing legal cause. Given the unique nature of the inquiry in each case, it is for the finder of fact

> to determine legal cause, once the court has been satisfied that a prima facie case has been established. To carry the burden of proving a prima facie case, the plaintiff must generally show that the defendant's negligence was a substantial cause of the events which produced the injury. Plaintiff need not demonstrate, however, that the precise manner in which the accident happened, or the extent of injuries, was foreseeable.
>
> Derdiarian v. Felix Contracting Corp., 51 N.Y.2d 308, 314-15, 434 N.Y.S.2d 166, 169 (1980).

## CONCLUSIONS OF LAW

### *The Presumption of Fault*

The Second Circuit affirmed the Court's previous finding that Hornbeck's tug was not operated with reasonable care, based on the defendant's failure to rebut the presumption of fault created by the application of the Oregon rule. See Zerega Ave. Realty, 571 F.3d at 211. The plaintiffs established, by a preponderance of the evidence, that the defendant owed a duty of care to the plaintiffs and that it breached that duty.

### *Causation*

The Court finds that the plaintiffs established, by a preponderance of the evidence, that damage to the bulkhead and the office building and the relieving platform's collapse were proximately caused by the negligent operation of the tug pulling the barge and its allision with the plaintiffs' property. Given that: (i) Schneider never observed any cracks or sinkholes on the Zerega property between 2001 and July or August of 2002, or the separation between the office building and relieving platform; (ii) the record evidence shows that the sinkhole developed to the extent that a test pit was excavated prior to November 6, 2002; and (iii) Schneider testified that the striking of the barge against the platform would compromise the entire platform structure by pressing a portion of the relieving platform in, the Court finds that the allision caused the cracks and sinkholes on the relieving platform, damaging the bulkhead and the office building and causing the platform's collapse. The plaintiffs' burden was not to exclude every other possible cause of the damage to the bulkhead and the office building and the platform's collapse, such as the impact of the high water event on the platform and the office building, or a structural deficiency or deterioration of the platform that may be due to the platform's construction or its age, or the impact of the test pit on the platform and the office building, see Burgos, 92 N.Y.2d at 550, 684 N.Y.S.2d at 141, but to demonstrate, by a preponderance of the evidence, that the defendant's negligence was a substantial cause of the events which produced the plaintiffs' injury, see Derdiarian, 51 N.Y.2d at 314-15, 434 N.Y.S.2d at 169. The plaintiffs demonstrated, by a preponderance of the evidence, that the defendant's negligence in operating the tug pulling the barge and alliding with the plaintiffs' platform was a substantial cause of damage to the bulkhead and the office building and the platform's collapse.

***Damages***

The Court concludes that the plaintiffs demonstrated, by a preponderance of the evidence, that the defendant is liable to the plaintiffs based on the plaintiffs' common law negligence cause of action. In light of the Court's finding that damage to the office building and the platform's collapse were proximately caused by the defendant's barge alliding with the platform, "the amount of damaged need not be retried." Zerega Avenue Realty Corp., 571 F.3d at 215. The Court finds that the defendant is liable to the plaintiffs for damages in the amount of $1,505,353.

***Prejudgment Interest***

"Although the allowance of prejudgment interest in admiralty rests within the discretion of the trial court, 'it should be granted in the absence of exceptional circumstances.'" In the Matter of the Complaint of Rio Grande Transport, Inc. v. Rio Grande Transport, Inc., 770 F.2d

262, 264 (2d Cir. 1985) (quoting Mitsui & Co., Ltd. v. American Export Lines, Inc., 636 F.2d 807, 823 [2d Cir 1981]). Generally, prejudgment interest "should be measured by interest on short-term, risk-free obligations," such as United States Treasury Bills. New York Marine & Gen. Ins. Co. v. Tradeline, 266 F.3d 112, 131 (2d Cir. 2001).

No exceptional circumstances exist in this case that would bar an award of prejudgment interest. The plaintiffs are entitled to prejudgment interest, which should be calculated based upon the average interest paid on six-month United States Treasury Bills, from the date of the allision, October 29, 2002, until the date the judgment is entered in this action. The interest shall be compounded annually. See Bio-Rad Labs. v. Nicolet Instrument Corp., 807 F.2d 964, 969 (Fed. Cir. 1986) ("The rate of prejudgment interest and whether it should be compounded or uncompounded are matters left largely to the discretion of the district court."); Am. Home Assurance Co. v. M/V Tabuk, 170 F. Supp. 2d 431, 435 (S.D.N.Y. 2001) (awarding prejudgment interest compounded annually, in an admiralty action, at a rate based on an average of the Treasury bill rates).

***Postjudgment Interest***

Postjudgment interest in admiralty cases is governed by the federal statute providing that "[i]nterest shall be allowed on any money judgment in a civil case recovered in a district court." 28 U.S.C. § 1961(a). Interest is calculated "from the date of the entry of the judgment, at a rate equal to the weekly average 1-year constant maturity Treasury yield, as published by the Board of Governors of the Federal Reserve System, for the calendar week preceding [] the date of the judgment," and is "compounded annually." 28 U.S.C. §§ 1961(a), (b). The plaintiffs are entitled to postjudgment interest, as noted above.

Dated: New York, New York
March 14, 2012

SO ORDERED:

Kevin Nathaniel Fox
KEVIN NATHANIEL FOX
UNITED STATES MAGISTRATE JUDGE